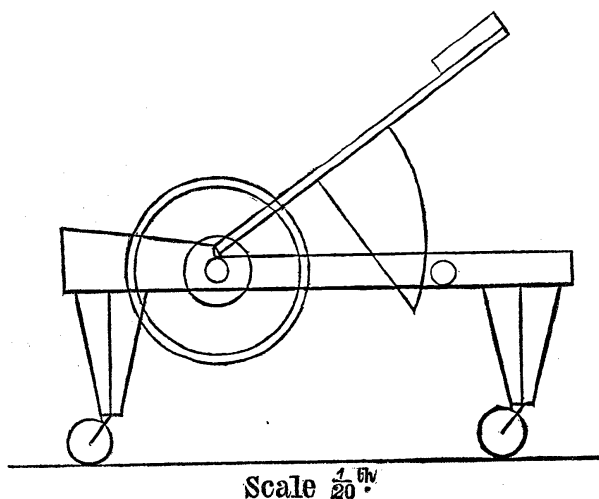


*A New Form of Observing Chair.* By Wentworth Erck, Esq.

This chair has now been in use some years, during which it has given entire satisfaction. It has all the advantage of a screw motion in raising the head through very small distances, while it has the great advantage of admitting of instantaneous motion through large arcs, which the screw does not. It has the further advantage of simplicity and economy.

The frame of the chair consists of a parallelogram about  $42 \times 21$  in. and 4 inches deep, supported on French castors at a convenient height.

Twelve inches at one end of this frame is sheeted over to form a seat, and to this seat the movable back is strongly hinged.



This back carries, at 20 inches from the hinges, two arcs of a circle 20 inches radius, and of any desired extent provided the sine of the arc does not exceed the height of the chair. These arcs are made of strong hoop-iron bent to the required curvature. To the vertex of each one end of a leather strap is firmly screwed, whilst the other end of the strap is secured to a loose roller about 3 inches diameter, placed across the frame immediately behind the arcs.

Now it is evident that if this roller be made to revolve, the effect will be to wind up, or lower, the back by means of the attached arcs.

But the roller, being in a position inaccessible to the observer, is connected by saddle-girth web to another roller in a convenient position near the front of the chair.

The axis of this second roller passing through the frame carries at each end a wooden wheel about 15 inches in diameter, having a thickened edge for convenience of handling. There is also fixed on this axis a ratchet wheel 6 inches in diameter, with a pawl so placed as to be easily released by the observer. It is

clear that by releasing the pawl and pressing on the back of the chair, it will be instantly depressed through any angle; and on the other hand, by spinning round the wheel, the back, if relieved from weight, can be instantly raised through any desired angle.

If the diameter of the rollers and large wheel be respectively  $2\frac{1}{2}$  and 15 inches, then a motion of the circumference of the wheel through a quarter of an inch will raise the observer's eye about one-sixteenth of an inch, corresponding to a space of a tenth of an inch between the teeth of the ratchet wheel.

The front edge of the chair should be slightly raised to prevent the body slipping forward when the back is inclined at certain angles.

For a telescope whose eyepiece is 5 feet from the Declination axis I use two of these chairs with seats at different heights, and when my feet are off the ground pull myself into approximate position by a strap hooked on to some convenient fixture.

*Sherrington, Bray, Co. Wicklow,*  
1875, December.

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*On Celestial Photography.* By Prof. Zenger.

Professor Zenger, in a letter dated Prague, November 10, 1875, writes that he has succeeded in very greatly reducing the time of exposure in celestial photography by employing "aplanatic objectives or mirrors of large aperture." He uses a new correcting achromatic lens in combination with mirrors of large aperture and very short focal length, so as to reduce the focal length to four times the aperture.

Professor Zenger also made use of the observations in the pure air of the Engadine. He states that with these arrangements he is able to get, every day that the Sun is sufficiently bright, photographs in which the corona presents itself as "a bright circular ring with the protuberances in it, if there are any. The ring on an average  $1^m$  in height, and only in exceptional cases of nearly  $2^m$ , and an excentricity amounting to only  $2''$  or  $3''$  of arc." "There is a fainter ring with broken outer layers, though often with sharply edged outlines.

"Careful observations of the Sun with my short focal refractor have shown the possibility of viewing directly the inner and most brilliant ring, if there be a coloured glass of a greenish yellow tint used.

"I cannot say whether this ring of nearly  $30''$  (it passes the filar micrometer in  $2^s$  nearly) be the chromosphere itself, or the most brilliant inner layer of the corona next the Sun, but I and Professor Jafauk, to whom I showed it, saw it all round the Sun as a nearly spherical ring of scarcely perceptible excentricity to the Sun's centre.

"I therefore would regard it as the most brilliant part of the